

Abstract

Context The short-term efficacy and effectiveness of highly active antiretroviral therapy (HAART) have been demonstrated in numerous clinical trials and observational studies. As patients and providers make choices for therapy when accessible, and as public health policy makers increase their commitment and resources for expanding therapy in disadvantaged domestic and international populations, further information on the long-term effectiveness of HAART is needed.

Objective Characterize the changing pattern of survival after development of clinical acquired immunodeficiency syndrome (AIDS) from 1984 to 2004 when different antiretroviral therapies were introduced.

Design, Setting, and Participants Two multi-center prospective cohort studies. A total of 1,504 men and 461 women with an initial AIDS diagnosis were observed under follow-up. Relative hazards of death and relative times to death were determined in five therapy eras: no/monotherapy (July 1984-December 1989); monotherapy/combination therapy (January 1990-December 1994); HAART introduction (January 1995-June 1998); short-term stable HAART use (July 1998-June 2001); and moderate-term stable HAART use (July 2001-December 2003).

Main Outcome Measure All-cause mortality.

Results A total of 1,057 (54%) study participants died. The time at which 25% of individuals died after an AIDS diagnosis increased significantly from 0.56 (95% CI, 0.50-0.64) years in the no/monotherapy era to 0.74 (95% CI, 0.67-0.82), 1.78 (95% CI, 1.29-2.44), 4.22 (95% CI, 2.94-6.05) and 5.08 (95% CI, 2.39-10.79) years in the four subsequent therapy eras, respectively. Inferences on the beneficial effects of HAART were confirmed after adjustment by age, sex, type of AIDS diagnosis and CD4 cell count at diagnosis. The pattern of the hazard of death after AIDS changed from increasing in the pre-HAART era to being lower and non-increasing in the eras of HAART.

Conclusions The sustained beneficial effect of HAART, even in individuals with clinical AIDS and extensive treatment histories, attenuates concerns about emergence of resistance, but augurs that a substantial number of HIV-infected individuals may require care for very long periods.

Key Words AIDS, effectiveness, HAART, hazard, survival